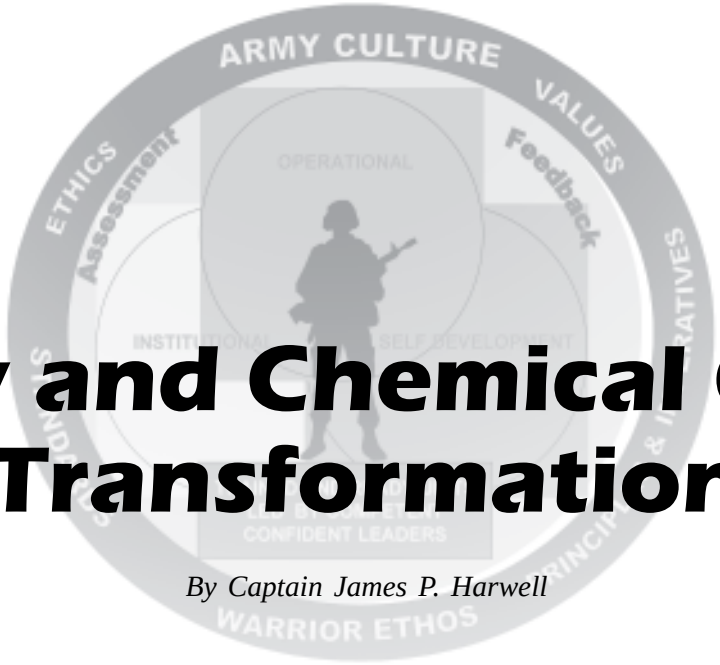

Army and Chemical Corps Transformation

By Captain James P. Harwell

During peacetime, change within the Army is generally slow and deliberate—conducted at a pace supported by limited resources. In wartime, however, change must occur more rapidly. Operational forces must be quickly strengthened, and the best available resources must be promptly provided to deployed Soldiers. Thus, in response to contemporary strategic challenges, the Army has accelerated its transformation. This transformation not only serves as an end in itself, but it also contributes to the accomplishment of current missions. To drastically improve its ability to provide forces and capabilities to combatant commanders, the Army is now undergoing its most profound restructuring in more than fifty years. Key aspects of the transformation already affecting the current force include the following:

- Resetting, restructuring, rebalancing, and stabilizing the force.
- Integrating component technologies of future combat systems.
- Developing networked information systems.
- Modernizing institutional Army processes.

While commanding the US Army Training and Doctrine Command (TRADOC) in 1989, General Carl Vuono introduced what would become known as the "six imperatives" that would drive future change in the Army force structure. The imperatives—doctrine, organization, training, leader development, materiel, and Soldiers (DOTLMS)—were intended to provide a comprehensive means of determining requirements for broadly defined, emerging missions. Later, as the Army and joint forces became interoperable, DOTLMS evolved into doctrine, organization, training, materiel, leader education, personnel, and facilities (DOTMLPF) and was applied to all components of the joint force.

A revised version of Field Manual (FM) 1, *The Army*, was signed by General Peter Schoomaker, Chief of Staff of the Army, in June 2005.[1] This strategic document explains how the Army is currently postured to protect the Nation's interests and describes the plan for Army transformation. As such, FM 1 guides combat development across the force, ensuring that the evolution of force structure and capabilities supports US strategic requirements.

Because technology and the wartime environment are changing at an ever-increasing pace, combat developers must apply the DOTMLPF imperatives to fluid operational situations and seek countermeasures to emerging threats—countermeasures ranging from the use of new tactics, techniques, and procedures (TTP) to the creation of new units with specialized missions. The Chemical Corps has been a proponent for many initiatives that have supported both the traditional warfighter mission and the homeland defense/civil support mission. As chemical, biological, radiological, and nuclear (CBRN) technology becomes available to nontraditional opposing forces, chemical combat developers must identify emerging trends and develop countermeasures to reduce the threat to US personnel who are forward-deployed throughout the world.

Doctrine

Since Operation Desert Storm, most of the Army's conflicts have been fought across nonlinear battlefields—from Operation Restore Hope in Somalia to the North Atlantic Treaty Organization (NATO) Implementation Force (IFOR) and Stabilization Force (SFOR) missions in the Balkans—and bear some resemblance to today's operations in Southwest Asia. As the traditional, linear battlefield has evolved toward the asymmetric battlefield of today's contemporary operational environment, the doctrine, techniques, tactics, and procedures (DTTP) of the Chemical Corps have not changed rapidly enough to maintain relevance to the maneuver commander. This has been due more to the lack of a clearly defined system for debriefing key leaders as they redeploy from various theaters of operation than to combat developers who, from their posts in the chemical schoolhouse, readily extrapolate lessons learned from after-action reviews and incorporate them into current Officer Education System (OES) and Noncommissioned Officer Education System (NCOES) programs of instruction (POIs).

The chemical mission is often carried out at the platoon and company levels, as units are now assigned to both the traditional force structure, from battalion task force to brigade combat team, and as components of modular maneuver enhancement packages supporting units of action. Through discussions with company grade officers and enlisted personnel who spearhead the conduct of nontraditional missions, the Corps must ensure that the TTP are relevant and that small unit leaders are made aware of them in a timely manner.

In this age of information technology, there are tools which could allow for the rapid sharing of information across the force. The nonsecure internet protocol router network (NIPRNET) and the secret internet protocol router network (SIPRNET) provide 24-hour access to chemical personnel serving around the world. Many attempts have been made to develop a medium for information sharing, from the advent of the original chemical doctrine network almost a decade ago to the knowledge centers located on the Army Knowledge Online (AKO) Web site. Non-chemical-specific sites, such as <*http://companycommand.com*> and <*http://www.squadleader.com*>, have expanded upon these tools. The sites allow leaders to bridge the branch gap to share combined arms or branch-immaterial information. While all these sites provide the ability to share current TTP, the lack of a central, combat development Web site forces leaders to sift through a convoluted network to find information focused on specific types of organizations and missions.

Due to the lack of a single, unified communication network, coupled with the minimal attention paid to the CBRN mission by many combat arms counterparts, it is unclear who is shaping the TTP and future doctrine of the Corps and how the CBRN mission will be incorporated into the maneuver enhancement mission. While the force looks to TRADOC and other elements above Corps level for doctrine that defines how the Army and the Nation will fight future wars, the Chemical Corps must analyze potential future threats and determine the TTP and materiel countermeasures needed to defeat those threats. It is the technical expertise and ingenuity of the Corps Soldiers and junior leaders that will determine the most effective TTP for the conduct of small unit missions. However, the Corps can assist these Soldiers and junior leaders by integrating with organizations that have been tasked to seek out and defeat future threats **before** those threats can be used against forward-deployed forces. Lessons learned from key leaders, coupled with on-site analyses provided by deployed teams from units such as the Improvised Explosive Device (IED) Task Force and the recently announced Asymmetric Warfare Group (AWG), provide the basis for predicting emerging threats.

"Doctrine facilitates communication among Soldiers, contributes to a shared professional culture, and serves as the basis for curricula in the Army education system. The Army is a learning organization. It has evolved with the Nation through societal changes, technological advancements, and ever changing international circumstances. It continually revises its doctrine to account for changes, incorporating new technologies and lessons from operations. It improves education and training processes to provide Soldiers with the most challenging and realistic experience possible. It aims to impart to Soldiers and units the individual and collective skills, knowledge, and attributes required to accomplish their missions."

—FM 1

Organization

Not since the shift from the regimental combat teams of World War II to the divisional structure of today's legacy force has the Army seen such a drastic change in the organizations employed to fight the Nation's wars. This change has been motivated by a need for modular forces which can adapt to a variety of missions based on a combatant commander's request. Missions have traditionally been tasked to divisional headquarters, which requires that divisional troops support brigade combat teams conducting combined arms operations and further requires corps and theater level logistics support assets to

conduct sustainment operations. Lately, there has been a shift to brigade level units of action. Many of the capabilities previously found only in division and corps support commands are now available as organic capabilities in the brigade combat team force structure. These brigade level units of action are capable of self-sustainment, so they may operate independently or be attached to a unit of employment (UEx/UEy) headquarters.

The force structure of the Chemical Corps has traditionally existed among the divisional troops and echelons above division (EAD) support assets. Forces have been attached to brigade combat teams for operational deployments. This modular force structure is consistent with today's model for Army transformation. Relationships previously formed during contingency operations have solidified as reconnaissance and decontamination platoons have become organic components of the unit-of-action force structure. More robust, full-spectrum chemical capabilities have been integrated into the newly designed maneuver enhancement brigades, providing a natural wartime headquarters and more realistic combined arms training opportunities at the home station. The expansion of technically specific missions has forced the Corps to develop units with more robust combat capabilities. Current initiatives have led to the transformation of single-purpose reconnaissance, decontamination, and biological surveillance units to the modular design found in combat support (CS) and corps support (heavy) units, which provide all the enduring combat capabilities under a single headquarters.[2] Additionally, the integration of toxic industrial chemical (TIC)/toxic industrial material (TIM) response packages (once found only in technical escort units) into decontamination platoons will ensure that junior leaders can respond to a wide variety of missions that units may face.

"The operational Army provides essential landpower capabilities to combatant commanders. For most of the twentieth century, the operational Army was organized around the division. Field armies and corps were groups of divisions and supporting organizations. Brigades, regiments, and battalions were divisional components. This structure served the Army and the Nation well. However, to remain relevant and ready, the operational Army is transforming from a division-based to a brigade-based force. This more agile "modular force" is organized and trained to fight as part of the joint force. Modular organizations can be quickly assembled into strategically responsive force packages able to rapidly move wherever needed. They can quickly and seamlessly transition among types of operations better than could their predecessors. Modular organizations provide the bulk of forces needed for sustained land operations in the twenty-first century. In addition to conventional modular forces, the Army will continue to provide the major special operations force capabilities (both land and air) in support of the US Special Operations Command's global mission."

—FM 1

The most resource-intensive component of the CBRN mission is decontamination, as units attempt to restore combat power and reduce the stress of operations within a CBRN environment. Operational control requirements define the support relationship between the decontamination platoon and the supported unit. Heavy decontamination platoons currently rely on supported units for nearly half the manpower required to conduct detailed equipment decontamination missions. However, as training has demonstrated, supported units are often unprepared to provide augmentation beyond the requirement to conduct detailed troop decontamination. The hot, harsh climates of tropical and desert environments, like that of Southwest Asia, can make such augmentation even more difficult. And the problem can be further exacerbated by resource requirements for conducting the decontamination mission—most notably, water requirements. Although nonaqueous decontamination materials have been used to reduce aqueous resource requirements, platoons have not been organized to sustain decontamination support. The small manpower footprint of decontamination platoons and the failure of units to provide augmentation result in difficulty with managing work and rest cycles during sustained missions. If mismanaged, personnel losses can result.

While the concepts supporting the new force structure design are valid, the redesign of chemical units must be comprehensive. Current changes have resulted in restructuring (but not in redesign) below the company level. Minor flaws, which are only identified following the implementation of modified table of organization and equipment (MTOE) changes, are slow to be corrected. Comprehensive redesign, including a complete requirements analysis and the staffing of recommended changes to current field units, would result in fewer additional changes to MTOEs due to current missions and would allow combat developers to concentrate only on those changes necessary to address emerging threats and changing technological capabilities. This would allow the Army and the Chemical Corps to complete the redesign more quickly.

The Chemical Corps has taken initial steps to correct deficiencies and ensure the relevance of the chemical force structure in supporting maneuver commanders. However, because of low-density capabilities, more robust organizations are needed to provide support until materiel or other means are available to reduce involvement in personnel-intensive missions.

"Army forces train every day. After the War of 1812, Secretary of War John C. Calhoun articulated the sole purpose of a peacetime army—to prepare for war. But in today's security environment, the Nation is engaged in a protracted war—the War on Terrorism. The Army no longer considers itself a peacetime army preparing for war. Today peace is the exception. Deployments, including combat operations, are normal. To prepare Soldiers and units to operate in this new strategic context, the Army is training them for ongoing operations and preparing for other possible contingencies simultaneously."

—FM 1

Training

The evolution of the battlefield from a peer state, linear configuration to the current insurgent-focused, asymmetric battlefield requires that leaders and Soldiers be trained for the certainties of combat and educated in the many possibilities of war. Currently, the Nation is engaged in regional conflicts in Iraq and Afghanistan, but remains prepared to battle peer competitors. In order to fight the disorganized, dangerous terrorists of al-Qaida and still remain strong enough to battle the future threat of nations attempting to usurp the United States' hegemony, the Army and the joint force must undergo significant transformation. Today's Soldiers must be trained to fight enemies who hide in the shadows and conditioned to face the perils of traditional warfare. They must be inculcated with the Warrior Ethos, so that when enemies strike, they quickly learn that the United States will not be content to take a defensive position, but will seize the offensive.

Based on the Army Training and Leader Development Model, there are three pillars that shape critical learning experiences throughout Soldiers' and leaders' careers—institutional education, operational experience, and self-development. According to FM 7-0, *Training the Force*, "The model identifies an important interaction that trains Soldiers now and develops leaders for the future. Leader Development is a lifelong learning process."[3]

The institutional domain provides Soldiers and leaders with the basic skills needed to establish a foundation for future growth and development. However, institutional learning comprises only a small component of a Soldier's career development. Although the Chief of Chemical has supported the accession of "warrior scientists" to fill the ranks of chemical officers and NCOs, leaders have limited time to develop the science-based skills required to support the force. Additionally, there are no current opportunities for senior leaders who have completed formal, chemical-specific training, such as the Chemical Captain's Career Course (CMC3) and the Advanced Noncommissioned Officer's Course (ANCOC), to obtain additional instruction. However, the changing operational environment requires that leaders remain aware of new capabilities and understand evolving DTTP. This means that even leaders with science backgrounds must maintain strong ties to the chemical schoolhouse. Furthermore, while more and more battalion staff officer and NCO positions are being filled by inexperienced personnel who need institutional training, fewer of the OES and NCOES POIs are dedicated to CBRN-specific training; more emphasis is being placed on emerging threats unrelated to the chemical mission. While non-chemical-specific training enhances the ability to support maneuver operations, it jeopardizes the proficiency of chemical personnel in the areas of CBRN mitigation and protection. Chemical leadership must ensure that chemical skills continue to be trained as new POIs are integrated. In addition, instructional programs that continue the institutional education of chemical officers and NCOs beyond CMC3 and ANCOC must also be developed.

Operational experience is another important domain of professional development. Due to the current operational tempo, today's leaders have developed the most extensive operational experience base seen since the Vietnam War era. As new threats have emerged, leaders and Soldiers have been required to use innovation and mental agility to quickly adapt to the evolving battlefield environment and to prepare for the conduct of nontraditional missions. Chemical Soldiers, for example, have conducted missions ranging from port operations to convoy security. While the experiences of war have trained many Soldiers regarding the conduct of battle, leaders must also seek to instill subordinates with the "warrior spirit"—a desire to defeat the enemy, rather than to simply survive. Soldiers must be reminded that the primary responsibility of the Nation's Army is to defeat the enemy by destroying its ability to conduct war.

Prior to the restationing of the 23d Chemical Battalion from Korea to Fort Lewis, Washington, the unit mission consisted primarily of aerial port of debarkation (APOD) and sea port of debarkation (SPOD) support. However, faced with the potential for deployment to Iraq and Afghanistan, the unit placed greater emphasis on the force protection mission. To prepare for this mission, the unit focused on completing combat survivability and resupply patrol tasks and training in weapons proficiency and mastery. These tasks and training opportunities developed the basic skills necessary for the unit to conduct combat survivability missions in any major theater of operations.

The component of the Army Training and Leader Development Model which truly defines the professional Soldier is self-development. This includes reviewing after-action reports to determine the emergence of trends, maintaining a constant connection to proponents for doctrine development, and reading professional maneuver and skill-specific materials. Self-development comprises the largest portion of the model. Leaders must assume responsibility for their own development and continually strive to develop skills that will enable them to identify and formulate countermeasures to emerging threats. Mentors must actively motivate young leaders to develop the skills necessary to adapt to the contemporary operational environment.

Based on tasks outlined in resources such as the Combined Arms Training Strategy (CATS) and mission training plans (MTPs), leaders develop scenarios designed to ensure that Soldiers are able to apply knowledge gained through institutional education and self-development to operational experiences under controlled conditions. Soldiers must be confident that they and their leadership have the combat survivability skills necessary to sustain operations in wartime. This level of confidence is best developed through the realistic simulation of combat conditions in which the thought processes of Soldiers and leaders are stretched and the Warrior Ethos is ingrained in every Soldier.

Materiel

As the Army has moved to develop greater expeditionary capabilities, the materiel means to increase force survivability and lethality have become available. The fielding of component technologies of the land warrior and future combat systems has been streamlined so that the components are now available to operational units. These components have already been issued to all forces entering either of the two current major combat theaters of operations. Intermediate capabilities, such as those of the Stryker variant combat system, provide the means to support the transition from the *legacy force* to the *Army after next*. The fielding of digital battlefield network capabilities has been expanded, providing all operational units with capabilities once reserved for the digital divisions. Systems such as Force XXI battle command–brigade and below (FBCB2) and Blue Force Tracker have increased situational awareness, reducing battlefield fratricide and increasing the survivability of CS and combat service support (CSS) units, which have traditionally been considered "soft" targets. The use of commercial, off-the-shelf (COTS) capabilities, such as global positioning systems (GPSs) and two-way radios, has allowed units to overcome shortages of MTOE equipment. The flexibility to analyze materiel capabilities and rapidly purchase equipment represents a shift from previous policies in which Department of the Army (DA) or major command (MACOM) approval was required for the fielding of equipment. This newfound authority better enables individual units to overcome insurgent threats.

The Chemical Corps has long been active in the development of materiel means for defense against CBRN threats. From their role in supporting the US Army Soldier and Biological Chemical Command (SBCCOM) to the newly reorganized Research, Development, and Engineering Command (RDECOM) and Program Manager for Nuclear, Biological, and Chemical Defense (PM NBC), chemical officers have assisted the warfighter in developing new technologies designed to enable the force to survive on the CBRN battlefield. Recent initiatives include the development of the nuclear, biological, and chemical reconnaissance vehicle (NBCRV)—a Stryker variant reconnaissance system with a biological detection capability previously found only in the Biological Integrated Detection System (BIDS). The Chemical Corps has also supported the development of initiatives designed to take advantage of current tactical network capabilities and to integrate sensors into future tactical networks. This provides a clearer picture of the battlefield environment and allows the Corps to more efficiently carry out the low-density mission to advise maneuver commanders.

Although materiel means are now more readily available to the combat force, such means do not provide immediate answers to emerging threats. Therefore, as combat developers search for materiel solutions to the evolving battlefield threat, units must focus on developing TTP which increase the lethality and survivability of forces. Specialized organizations, such as the IED task force and the Defense Threat Reduction Agency, work with units to help develop the

> *"The operational Army is benefiting from future combat system programs today. The Army is integrating component technologies into the current force as they become available. It is not waiting until all future combat system elements are completely developed. This strategy allows the operational force to use the best equipment and latest technological enhancements available. In addition, the experience gained in using these technologies is helping improve future force decisions. A continuous cycle of innovation, experimentation, experience, and change is improving the Army's ability to provide dominant and sustained landpower to combatant commanders. It is getting newly developed technology to Soldiers faster then (sic) previously envisioned."*
>
> *—FM 1*

"Today's security environment demands more from Army leaders than ever before. Army leaders must not only be able to lead Soldiers but also influence other people. They must be able to work with members of other Services and governmental agencies. They must win the willing cooperation of multinational partners, both military and civilian. But ultimately, the Army demands self-aware and adaptive leaders who can compel enemies to surrender in war and master the circumstances facing them in peace. Victory and success depend on the effectiveness of these leaders' organizations. Developing effective organizations requires hard, realistic, and relevant training."

—FM 1

necessary TTP. Unit leaders are and will remain responsible for the development of force protection measures.

Leader Education

Today's leaders face the challenge of transformation in an Army that is engaged in a new type of war—one in which the enemy is not defined by nationalistic allegiance but by contempt for Western ideals. This type of operational environment provides unique challenges and experiences that recent generations of leaders did not face. The operational tempo associated with this type of environment strains the ability of units to train for missions beyond those that are theater-specific. However, leaders must prepare Soldiers for conducting high-intensity conflict operations, while also remaining ready for regional conflicts.

Leaders must analyze current doctrine and TTP to ensure their relevance. They must also have the mental agility to apply basic principles to complex problems. Senior leaders must continue to expand their knowledge base and assist junior leaders in developing the skills needed to perform in an evolving battlefield environment. Junior leaders must be willing to challenge old ideas and apply unique solutions to previously unforeseen problems. Leaders today, more than ever, must also understand the roles of their units as components of the joint force. The ability to integrate multiservice capabilities in support of nontraditional missions is an expectation traditionally reserved for senior officers and NCOs. However, all of today's leaders—including those providing CS and CSS—must understand the application of maneuver in complex environments.

The Chemical Corps has a reputation for developing adaptive, agile leaders who have a strong understanding of maneuver concepts. The integration of chemical personnel into the maneuver force structure provides the force with leaders who have a good understanding of traditional support and maneuver requirements and are also capable of performing nontraditional missions. The chemical OES/NCOES supports the development of adaptive leaders through the instruction of a broad array of tactical subjects. Institutional instruction is reinforced through operational experience and self-development, creating a strong knowledge base among junior leaders.

Soldiers deserve great leadership! They deserve compassionate leaders who are dedicated to ensuring that they have the skills necessary to survive on today's battlefield. Successful leaders understand that placing Soldiers in realistic, stressful situations within a controlled training environment is necessary to develop the skills required to survive and ultimately win wars.

Many units have developed leader certification programs which require that unit leaders be knowledgeable in the capabilities and proficient in the employment of their elements. These programs are designed to develop esprit de corps and establish peer groups, facilitating dialogue among leaders. The 23d focuses on leader knowledge and proficiency with all organizational property in the unit. It encourages self-development of young leaders by promoting professional reading so that officers may become tactically and technically sound. Many units also award credit for operational experience (such as awarding spurs to cavalry troopers who deploy with a cavalry unit but do not complete a spur ride program).

Personnel

Transformation of the Army under wartime conditions has placed considerable strain on the most precious and perishable resource available—the people. Failure to provide responsive support for future conflicts will degrade the reputation and threaten the status of the Corps. Personnel is the most difficult combat system component to produce, maintain, and replace. Therefore, the management of personnel as a perishable resource has been a dominant component of Army transformation and has driven initiatives such as the life-cycle manning of units.

The greatest challenge of the current Global War on Terrorism (GWOT) is the division of personnel resources. Army maneuver forces have a shared tactical and strategic mission to close with and defeat the enemy on the battlefield, and the vast majority of the chemical force structure is designed to support this mission. The emphasis on

> *"Well-trained Soldiers are fundamental to realizing any improvements in technology, techniques, or strategy. It is Soldiers who use technology, execute techniques, and accomplish strategies. It is they who bear the hardships of combat, adapt to the demands of complex environments, and accomplish the mission. Their collective proficiency and willingness to undergo the brutal test of wills that is combat remains the ultimate test of Army forces."*
>
> *—FM 1*

contamination avoidance through chemical reconnaissance and passive countermeasures has resulted in the chemical force structure being overlooked beyond low-density positions within maneuver forces. The decontamination mission, which is a component of strategic defense operations, is considered necessary only when transitioning to offensive operations. However, as enemy resources and expertise in developing CBRN weapons increase, the threat will become more prevalent. This new threat will challenge the ability of the Army to protect even the most hardened positions. Therefore, the Chemical Corps must ensure that current CBRN equipment is maintained and that troops remain rapidly deployable to support tactical and civil forces worldwide.

Facilities

As transformation of the force continues, greater emphasis is placed on interoperability of the Army within the joint force. Additional facilities will provide the infrastructure necessary to support realistic, joint-force training. Key units have been identified for expansion and realignment. Traditional service support facilities will be placed under new, unified garrison commands. As commands continue to grow, leaders will have greater opportunities to conduct combined arms training, previously capable only under contingency conditions. The success of unit operations depends on the geographic proximity of base clusters. These base clusters will support the operational footprint of restationing and newly created units. The impact of these new facilities will be based on the specific support that they can provide to the units, such as runways and shipyards.

> *"At the strategic level, joint interdependence allows each Service to divest itself of redundant functions that another Service provides better. Doing this reduces unnecessary duplication of capabilities among the Services. It achieves greater efficiency in all areas of expertise. Interdependence allows the Army to focus on developing capabilities that only land forces can provide. Likewise, relying on the Army for land-related capabilities allows the other Services to achieve greater efficiencies in their respective domains."*
>
> *—FM 1*

Conclusion

Combat development under wartime conditions would be a difficult task at any point in the operational spectrum. Today, however, it must be accomplished as the battlefield landscape evolves and leaders continuously face the challenges of emerging threats. Combat developers must consider the demands of the asymmetric battlefield, while never losing sight of peer competitor threats. They apply the DOTMLPF imperatives to ensure that newly designed or redesigned units are capable of supporting current and future operations. In today's rapidly changing battlefield environment, it is critical that field commanders and experienced operators are active members of the combat development process. In this age of transformation, as new technologies result in the refinement of both doctrine and TTP, leaders must actively provide feedback to combat developers and, when facing emerging threats, conduct lateral coordination and planning to facilitate the development of countermeasures, which enhances both survivability and lethality. Units that do not adapt to the contemporary operational environment face the possibility of operational irrelevance. They also, ultimately, present soft targets to a dangerous enemy.

Endnotes

[1] FM 1, *The Army*, 14 June 2005.

[2]The 23d Chemical Battalion will transform its current decontamination chemical companies to the new modular force structure CS and corps support (heavy) chemical companies during fiscal years 2006 and 2007. The transformation will add CBRN reconnaissance and biological detection capabilities. Additionally, the integration of this new chemical force structure into the new maneuver enhancement brigade design will enhance the ability of chemical staffs to prevent marginalization of the CBRN mission.

[3]FM 7-0, *Training the Force*, 22 October 2002.

Captain Harwell is a joint response team leader in the A/110th Chemical Battalion (Technical Escort), Fort Lewis, Washington. He has a bachelor's degree in political science from Indiana University.